CHAPTER 2

PURPOSE AND NEED FOR ACTION

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CHAPTER 2

PURPOSE AND NEED FOR ACTION

2.1 INTRODUCTION

This chapter discusses the identified purpose and need for the project, and addresses comments on the Draft EIS pertaining to them. The Dakota, Minnesota & Eastern Railroad Corporation (DM&E) of Brookings, South Dakota was created in 1986, formed from rail lines the Chicago & North Western Railroad (C&NW) was attempting to abandon. Additional rail lines owned by C&NW and not part of that abandonment proceeding were also included in the formation of DM&E. The current DM&E system includes approximately 700 miles of east-west rail line track across southern and central South Dakota and southern Minnesota. It also consists of several hundred miles of secondary track extending off the rail line into northwestern Nebraska, northern Iowa, and other areas of South Dakota and Minnesota (Figure 2-1).

DM&E is a Class II railroad, the primary rail transportation provider for most of South Dakota, and the only east-west railroad in southern Minnesota. It currently operates 4 to 12 trains per day, including through and local service and switching, over sections of its system. It transports primarily grain and other agricultural products, but also carries bentonite, kaolin clays, cement, and wood products. The rail service it provides to agricultural shippers in its service area is an important component of the rural agricultural economies of South Dakota and Minnesota.

At the time DM&E was formed, its rail infrastructure was in poor condition. In the Draft EIS it was noted that since beginning operations in 1986, DM&E has spent approximately $110 million in capital expenditures for improvements. Even with this spending, DM&E asserts that many parts of its system are still in poor condition, operate under speed and weight restrictions, and do not provide safe, reliable, or efficient rail service. The result has been lower than anticipated rail service to existing shippers and reduced ability to attract additional business, from both existing shippers and potentially new shippers.[1]

DM&E currently lacks the revenue base to generate capital needed for system-wide rehabilitation for safe, reliable, and efficient service to its existing shippers. However, it believes that demand for cleaner-burning, lower-cost, low-sulfur coal from Powder River Basin (PRB) mines offers DM&E the opportunity to expand its revenue base because DM&E's system lies between PRB mines and existing coal markets. DM&E states that the Powder River Basin Expansion Project (or the PRB Expansion Project) would enable it to rebuild its existing system, without Federal or state funds beyond those it currently receives, to offer its current shippers

[1] The Board acknowledged these service limitations in its decision issued on December 10, 1998, recognizing the widespread support for this project from existing DM&E rail shippers, and the inability of a railroad with annual revenues of $50 to $60 million to rehabilitate over 1,000 miles of rail line.

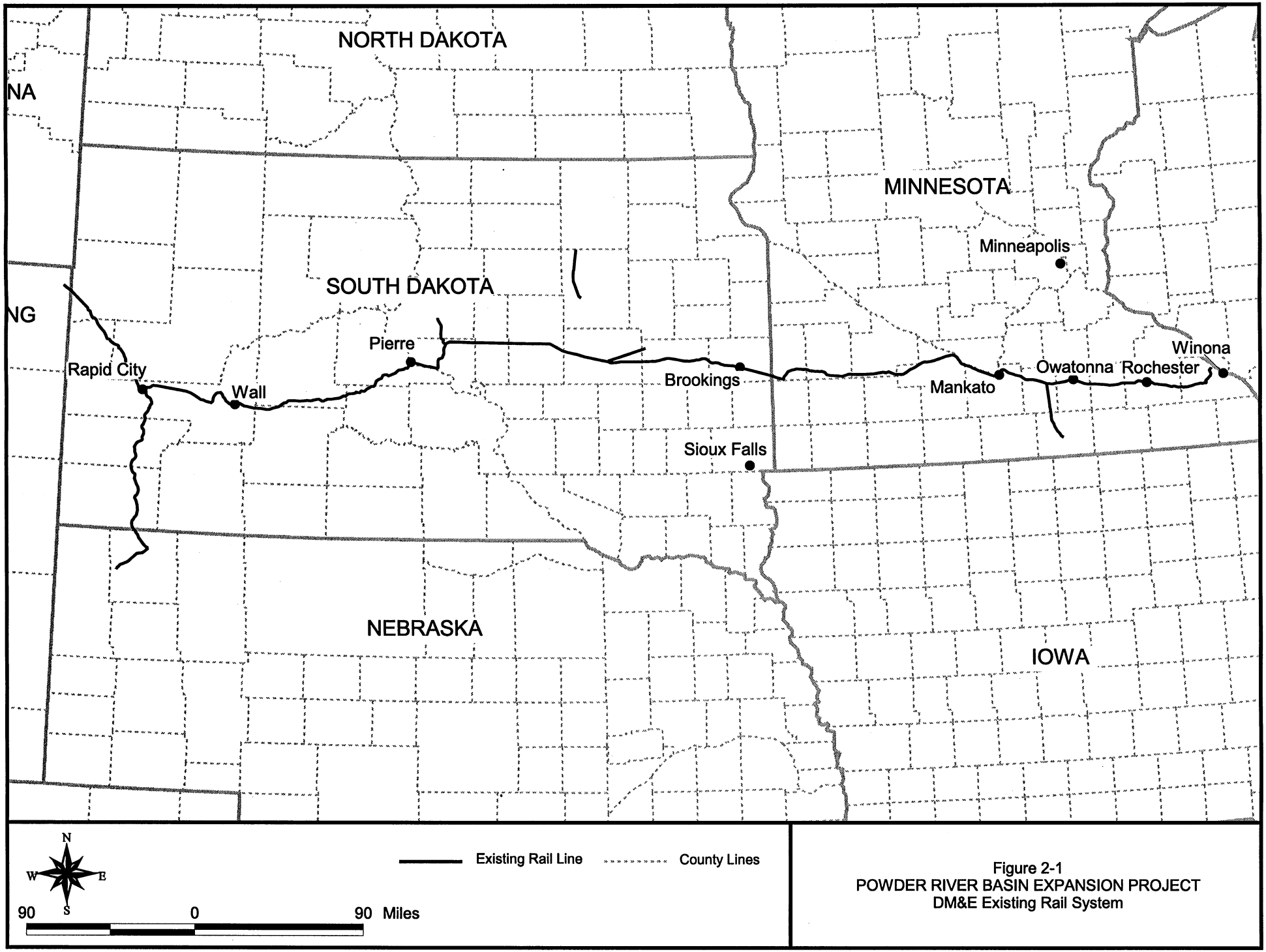

Figure 2-1
POWDER RIVER BASIN EXPANSION PROJECT
DM&E Existing Rail System

improved service, increased safety, greater efficiency, and the potential to expand markets nationwide. These benefits, DM&E believes, could potentially lead to increased agricultural revenues and a stronger agricultural economy in the region.

The PRB Expansion Project involves a total of 281 miles of new rail line construction and 598 miles of DM&E's existing rail line rebuilt to standards acceptable for operating unit coal trains. On December 10, 1998, the Board issued a decision finding that, based on the information available at that time, the project satisfies the transportation-related requirements of 49 USC 10901. The Board also indicated that, at the conclusion of the environmental review process, it would issue another decision on the entire proposed project, assessing the potential environmental impacts, and the cost of any environmental mitigation that was imposed.

2.2 PURPOSE OF PROPOSED ACTION

DM&E's Application identified two primary purposes for the project: first, to have a third rail carrier serve the PRB, enhancing competition and operations; second, to improve service and the operational safety of its existing operations. DM&E believes, and the Board concurred in its December 10, 1998 decision, that the PRB Expansion Project would transport coal more cost-competitively and reliably from a specified group of coal-producing mines in Wyoming's southern PRB[2] over the shortest, most energy-efficient route to coal-burning electricity-producing utilities in the target market,[3] as well as the public they serve.

The second purpose would be accomplished by rebuilding the existing rail line. DM&E states that rehabilitating and rebuilding the existing infrastructure would reduce the high incidence of derailments caused by track failure and provide significant improvements to grade crossing protection for train and vehicular traffic. According to DM&E, rehabilitation would increase operating speeds and car weights throughout the system, enabling DM&E and its customers to compete better in their existing markets and possibly expand into new markets.

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[2] The Application identifies 11 mines (Caballo, Belle Ayr, Caballo Rojo, Cordero, Coal Creek, Jacobs Ranch, Black Thunder, North Rochelle, North Antelope, Rochelle, and Antelope) to be served. Coal from these southern PRB mines has low sulfur dioxide and sodium content relative to British thermal unit content, and is particularly suited to electric utilities, with cost-competitive delivery, as a replacement for high-sulfur coal.

[3] Target markets for delivery of DM&E coal are (1) rail-based utility plants in Minnesota and Wisconsin, (2) Mississippi River utilities, (3) Great Lakes utilities, and (4) Chicago gateway. DM&E determined that the primary criterion of its target market was an area where the project could introduce new transportation efficiencies and competitiveness sufficient to allow utilities to convert from high-sulfur coal to the lower-sulfur PRB coal.

DM&E believes the project could have additional benefits. It states that increased competitive access to lower-sulfur PRB coal would facilitate objectives of Phase II of the Clean Air Act Amendments of 1990 (CAAA) sulfur-dioxide emission reductions, which took effect in 2000, by creating another economical way for utilities to replace high-sulfur coal with lower-sulfur PRB coal. Construction and operation of this project, DM&E alleges, would convert DM&E to a Class I railroad,[4] and offer a more reliable national and regional rail transportation system by increasing rail capacity. Increased rail system safety, reliability, and efficiency could also produce rural economic benefits such as increased farm income, increased economic development, and less burden on the rural road network. These topics are discussed in more detail in Section 2.3.

2.3 NEED FOR PROPOSED ACTION

DM&E states the overall need for the project as the development of viable, safe, and competitive rail service offering a reliable fuel source to Midwestern utilities, which must meet increased demands for energy production and respond to a changing regulatory environment requiring cheaper, cleaner energy. Each component of the project need is discussed below.

2.3.1 SAFE AND RELIABLE RAIL SERVICE

The current dilapidated condition of DM&E's rail line poses safety and service problems, as discussed in the Draft EIS. In preparing this Final EIS, SEA updated Tables 1-1, 1-2, and 1-3 of the Draft EIS (Tables 1-1 to 1-3 here) to include 1999 accident information. The available data indicates that DM&E's accident rate remains among the highest in the rail industry. However, between 1992 and 1999 DM&E improved its overall safety record, decreasing accidents from 46.50 per million train miles in 1992 to 14.85 in 1999, a 68 percent decline in 7 years. Industry-wide, train accidents have remained relatively steady, varying between 3.91 per million train miles in 1995 and 3.54 in 1997. Accident rates for Class I railroads have also remained steady during this period, ranging from a high of 3.46 per million train miles in 1995 to a low of 3.08 in 1997.

[4] Railroads are classified by the Surface Transportation Board according to average annual operating revenues (AAOR). Class I railroads have AAOR of $256.4 million or more; Class II railroads have AAOR of between $256.4 million and $20.5 million; and Class III railroads have AAOR of less than $20.5 million.

Table 2-1
DM&E Accidents/Incidents at Highway-Rail Crossings (Public and Private)

YEAR	NUMBER
1992	23
1993	26
1994	17
1995	18
1996	11
1997	21
1998	14
1999	11

Table 2-2
DM&E Train Accidents (Excluding Highway-Rail Crossings)

YEAR	NUMBER	RATE*
1992	31	46.50
1993	30	46.77
1994	34	53.05
1995	27	41.14
1996	26	36.00
1997	27	38.39
1998	16	23.79
1999	12	14.85

*Accident Rate per million train miles

Table 2-3 Accident Rate* Comparison	
1995 Train Accident Rates for Class I, Class II, All Railroads and DM&E	
Train accident rate for Class I railroads	3.46
Train accident rate for Class II railroads	5.87
Train accident rate for all railroads	3.91
DM&E train accident rate	41.41
1996 Train Accident Rates for Class I, Class II, All Railroads and DM&E	
Train accident rate for Class I railroads	3.40
Train accident rate for Class II railroads	5.72
Train accident rate for all railroads	3.85
DM&E train accident rate	36.00
1997 Train Accident Rates for Class I, Class II, All Railroads and DM&E	
Train accident rate for Class I railroads	3.08
Train accident rate for Class II railroads	5.13
Train accident rate for all railroads	3.54
DM&E train accident rate	38.39
1998 Train Accident Rates for Class I, Class II, All Railroads and DM&E	
Train accident rate for Class I railroads	3.42
Train accident rate for Class II railroads	4.22
Train accident rate for all railroads	3.77
DM&E train accident rate	23.79
1999 Train Accident Rates for Class I, Class II, All Railroads and DM&E	
Train accident rate for Class I railroads	3.45
Train accident rate for Class II railroads	5.02

Table 2-3 Accident Rate* Comparison	
Train accident rate for all railroads	3.89
DM&E train accident rate	14.85
*Accident Rate per million train miles	

DM&E states that its existing revenue base and other critical capital needs preclude meaningful improvements to its rail system. It is currently only able to fix the most critical problems while deferring others until they are critical to continued safe operation. Substantial improvement requires large-scale replacement or rebuilding of the existing system. In its December 10, 1998 decision on the transportation merits of DM&E's Application, the Board saw "the very real likelihood that, absent the funds generated by this project, DM&E could cease to exist as a viable railroad."[5] With projected increases in the revenue base from this project, DM&E believes it could improve existing rail infrastructure and fund major grade crossing and right-of-way protection enhancements, providing badly needed safety and service improvements for DM&E's shippers, and for future rail service needs. DM&E states that it could make these improvements only with the influx of capital made possible through the PRB Expansion Project.

2.3.2 NATIONAL ENERGY POLICIES

DM&E's Application indicates that current national energy policies fuel the need for this project. One such policy is the deregulation of the electric-utility industry in order to introduce competition and stabilize, if not reduce, consumer electricity prices. SEA presented information in the Draft EIS that supported DM&E's statements that this project would help electric utilities adapt to deregulation, with reduced electricity prices for consumers. This material came from published and publicly available sources, many from the Edison Electric Institute (EEI).[6] Because

[5] Board Decision, dated December 10, 1998, at page 45.

[6] Edison Electric Institute is an association of shareholder-owned electric utilities (also known as investor-owned utilities or IOUs), including 200 U.S. companies, over 45 international affiliates, and over 100 associations. Edison Electric Institute serves the needs of its member utilities by advocating public policy, developing and expanding markets, and providing information to assist members in making strategic business decisions.

EEI expressed support for the project during the Draft EIS comment period,[7] and because it represents the electric-utility industry, several commenters on the Draft EIS called into question EEI's credibility. Therefore, SEA conducted additional research using other sources on deregulation, its effects, and the need for this project, if any, in a deregulated electric industry.

SEA identified publications of the Energy Information Administration (EIA)[8] that discuss the deregulation process and its potential effects, and some measures utilities are taking to be successful in a deregulated market. These publications support SEA's statements in the Draft EIS. A summary of these publications is presented below.

Deregulation of the electric-utility industry has been in progress since the late 1970s. The Public Utility Regulatory Policy Act of 1978 (PURPA) required electric utilities to connect with and buy energy from any non-utility meeting certain criteria. PURPA said that non-utilities producing electricity, such as manufacturing plants or even individual citizens, could sell excess electric power to the utility serving their area. If this excess power were offered to the utility, PURPA required it to connect to the non-utility and pay the generator for the power. PURPA was followed by the Energy Policy Act of 1992, which opened to non-utilities the existing electricity-transmission network that was owned, operated, and maintained primarily by electric utilities. This enabled non-utilities generating power to move it, not just sell it to the utility to be used as the utility deemed necessary.

In 1996 the Federal Energy Regulatory Commission (FERC) issued Orders 888 and 889, advancing the policy of deregulation and competition in the electricity marketplace. Order 888 provided for open access to the electricity-transmission network, while Order 889 required utilities to share information about their transmission capacities. The intention was to eliminate electric utilities' monopoly over the transmission of electricity.[9] In a regulated electric utilities environment, utilities were required to provide electrical service to all customers in their service area requesting it, and were expected to invest in the necessary generation, transmission, and distribution facilities to provide service.

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[7] Edison Electric Institute (EEI) representatives presented oral comments of support, and Leboeuf, Lamb, Greene & Macrae submitted written comments of support on EEI's behalf during the Draft EIS comment period. However, SEA considers EEI references it used in the Draft EIS credible because EEI's information was based on published, publicly available sources.

[8] EIA is an independent Department of Energy agency, producing statistical and analytical analysis of the energy industry. It offers objective and accurate information and does not advocate for any agency or organization.

[9] The Restructuring of the Electric Power Industry - A Capsule of Issues and Events, U.S. Department of Energy, Energy Information Administration, DOE/EIA-X037, January 2000.

Prices for wholesale and retail electricity were regulated by a utilities commission which calculated the price of electricity on the basis of a utility's existing costs, or investments plus a negotiated rate of return on these investments.[10] A utility's bills, loan payments for construction, costs of fuel and labor, taxes, and other operation and maintenance costs constituted total investment costs for the utility. These investment costs, plus a profit margin, were used to develop the prices utilities could charge customers for electricity. Because a utility could always cover its operation costs, there was no incentive to consider the risks of its investments, develop more efficient procedures, or reduce costs. This is in direct opposition to the objective of deregulation[11] which is to promote competition in the wholesale and retail electric-power markets.

Recent technological advances in electrical generation have resulted in greater efficiencies, and their use by newer facilities results in lower generation costs than for older facilities. These technologies have been employed by both utilities and non-utilities.[12] Investor-owned utilities (IOUs), the predominant providers of electricity nationwide, have seen their customer base threatened by both utilities and non-utilities capable of generating electricity at lower costs. This has pressured IOUs to lower their costs, which they do by reducing operating, maintenance, and fuel costs. For every dollar customers paid utilities in 1998, approximately 45 cents went to operation and maintenance costs, with 15 cents going to purchase and transport fuel.[13] Since fuel costs directly affect the price of electricity, reducing either the cost of fuel or its transportation reduces the price of electricity.

Twenty-four states have restructured the electric-power industry to allow consumers to choose their electricity supplier. Other states, mainly in the South and Midwest, have not yet done so, primarily because of the low cost of electrical generation in those states. DM&E has identified utilities in the upper Midwest, including Minnesota and Wisconsin, as its primary market area. Both of these states are tending toward restructuring the electric industry.[14]

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[10] The Changing Structure of the Electric Power Industry 2000: An Update, U.S. Department of Energy, Energy Information Administration, DOE/EIA-0562(00), October 2000.

[11] Ibid.

[12] Ibid.

[13] The Restructuring of the Electric Power Industry - A Capsule of Issues and Events, U.S. Department of Energy, Energy Information Administration, DOE/EIA-X037, January 2000.

[14] Status of State Electric Industry Restructuring Activity as of March 2001, U.S. Department of Energy, Energy Information Administration. Available online at www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html.

The Minnesota Department of Commerce recommended changes in the State's electric-power industry in September of 2000, but did not recommend full retail competition. Wisconsin Public Service, one of the state's large IOUs, filed a restructuring plan in December of 2000 to begin implementing competition. As utilities move toward a restructured marketplace, the cost of generating electricity, and consequently the price they can charge customers, will be considerations. By shortening routes to power-generation facilities in these states, the proposed project effectively offers them reduced fuel costs, thereby reducing their costs to generate electricity.

FERC believes that even the currently limited competition in the electric industry saves consumers between $3.5 and $5 billion annually. EIA (2000)[15] projects a decline in electricity prices in deregulated markets of approximately 1 cent per kilowatt hour between 2000 and 2012, followed by an increase of 0.2 cents per kilowatt hour by 2020. Prices in regulated markets should remain stable over the same time period. At a projected sale of over 4.5 trillion kilowatt hours by 2020, this represents several hundred million dollars of additional savings to consumers. Additionally, differences between highest and lowest prices for electricity are expected to shrink from approximately 7.0 cents per kilowatt hour in 1995 to approximately 3.8 cents per kilowatt hour by 2020.[16] EIA indicated that spikes in electricity prices in 1999 were not as severe or sustained as in 1998, possibly reflecting a maturing competitive market.

As another benefit of deregulation, EIA anticipates more improvements in electrical generation technology leading to lower generation costs, while compliance with existing environmental regulations produces improvements that reduce environmental impacts. These will likely include cleaner and more efficient coal use for electricity generation, and increased development and use of cleaner coal for technologies future electricity needs, as promoted in the National Energy Policy of May, 2001.

PRB coal costs less than coal from other sources, largely due to mining efficiency. The mine price of coal in Wyoming's PRB averaged $6 per ton in 1997, decreasing to $5.41 per ton in 1998, with coal mined west of the Mississippi averaging $9.92 and $9.25, respectively.[17] Coal mined east of the Mississippi averaged $25.39 per ton in 1997 and increased to $25.78 in 1998.

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[15] Annual Energy Outlook 2001 - with Projections to 2020, U.S. Department of Energy, Energy Information Administration, DOE/EIA-0383, December 2000.

[16] Ibid.

[17] Average Mine Price of Coal by State, 1988, 1993-1997, U.S. Department of Energy. Online database available at http://www.eia.doe.gov/cneaf/coal/cia/t80p01 .txt.

PRB coal prices should continue to decline 1.4 percent per year between 1999 and 2020.[18] Utilities currently using PRB coal are expected to experience reductions in fuel cost and so continue to use PRB coal, possibly increasing use of it. Other utilities may switch to lower-cost PRB coal to reduce fuel costs. Therefore, lower-cost PRB coal offers utilities an opportunity to reduce their electricity-generation costs, resulting in more competitive prices for the consumer.

As discussed in the Draft EIS, the proposed DM&E project would provide a straighter, shorter, and more direct rail line between the PRB coal mines and DM&E's target utility market area than those of the two other rail carriers currently serving PRB mines (Union Pacific Railroad Company (UP) and Burlington Northern Santa Fe Railway Company (BNSF)). This project could reduce coal transportation distances by nearly 100 to 400 miles to specific electrical generation facilities in Minnesota and Wisconsin.[19] Additionally, the PRB Expansion Project would provide a slightly shorter route, approximately 30 miles one-way to Chicago, a major rail interchange for traffic bound for the Ohio River area and points east.

Another national policy that DM&E believes drives a need for this project is the Clean Air Act Amendments of 1990 (CAAA). CAAA requires, among other things, a phased-in overall reduction in sulfur dioxide (SO_2) and oxides of nitrogen (NO_X) emissions. CAAA requires reduction of SO_2 emissions by 10 million tons and reduction of NO_X emissions by 2 million tons below levels of the 1980s. Sulfur dioxide emissions are to be capped at this level. Electric utilities will be responsible for approximately 8.5 of the required 10 million-ton reduction, since they are currently responsible for two-thirds of SO_2 emissions. Of total annual SO_2 emissions allowed nationwide, utilities would be allowed to emit 8.95 million tons annually. Phase I of CAAA occurred between 1995 and 2000, and included 445 electricity-generating facilities, most using coal. Phase II of CAAA, to take place between 2001-2004, will further restrict the SO_2 emissions of these facilities and apply restrictions to smaller and new facilities. Since sulfur-containing fossil fuels such as coal emit SO_2 when burned, the sulfur content of coal is now a significant consideration for coal-burning utilities.

As discussed in the Draft EIS, implementation of Phase I of CAAA has resulted in reductions in overall SO_2 emissions by coal users in three ways – installation of scrubbers, switching to lower-sulfur coal, and a combination of both. Using lower-sulfur fuels such as PRB

[18] Annual Energy Outlook 2001 - With Projections to 2020, Department of Energy, Energy Information Administration, DOE/EIA-0383(2001), December, 2000.

[19] Approximately 115 miles shorter to Superior Midwest Energy Terminal, 220 miles shorter to Wisconsin Public Service Corporation's Pulliam Plant, and 375 miles shorter to Wisconsin Power & Light's Columbia Plant, based on an estimated total distance for the proposed project of 810 miles from the PRB to Winona, Minnesota.

coal can give the industry an effective means to reduce SO_2 emissions to levels compliant with CAAA.[20] As new coal-burning generation facilities replace older facilities or provide for increased energy demand, they are required under CAAA to utilize Best Available Control Technologies (BACT). In the current regulatory environment, this will require many facilities not only to use scrubbers, but also to use low-sulfur fuel.

Specifically, CAAA established a system of emissions credits or allowances measuring a facility's total emissions permitted, which were distributed to then-existing utilities and other electricity generators. Facilities emitting less than their allowance may exchange or sell extra credits. Those emitting more than their allowances must either obtain additional credits from facilities with excess credits or reduce their emissions. The sum of all credit allowances nationwide sets the maximum level of emissions for the entire United States. As energy demand increases, it is likely that more power-generation facilities will be required. But since the emissions level of the United States has been set, new facilities must obtain allowances for their projected emissions from existing facilities. As demand for credits increases, generators of electricity will be pressed to reduce emissions to the greatest extent possible. Implementation of CAAA's BACT will require new coal-burning electricity generators to use scrubbers to remove SO_2. But those using lower-sulfur PRB coal will begin with lower SO_2 emissions, thus reducing the number of credits they will have to obtain in a tight emissions-credit market.

In addition to reductions in SO_2, CAAA calls for nationally reduced NO_X emissions, about one-third of which are produced by utilities. Locomotives' diesel engines also produce NO_X emissions, and this project's shorter routes between mines and electric utilities would reduce locomotives' fuel consumption for coal transport. Depending on traffic levels, several million gallons of diesel fuel per year could be conserved. Combined with Environmental Protection Agency (EPA) requirements for cleaner diesel engines, this would reduce NO_X emissions.

Since release of the Draft EIS, a third national policy affecting the energy industry has emerged. The National Energy Policy (Policy) released in May 2001 provides direction from the President on addressing the nation's energy needs. One of its components involves expanded utilization of our national coal reserves. Acknowledging that cleaner technologies have reduced the environmental impacts of coal-burning facilities, the Policy supports expanded use of PRB coal for its environmental benefits (lower SO_2, NO_X, and ash emissions).

[20] The Effects of Title IV of the Clean Air Act Amendments of 1990 on Electric Utilities: An Update, U.S. Department of Energy, Energy Information Administration, April 9, 1997, at 20.

In summary, use of PRB coal makes it easier for existing and emerging electricity generators to comply with national policies on deregulation, CAAA, and increased utilization of coal resources. Using lower-cost PRB coal helps utilities reduce both fuel costs and the price of electricity, to more easily attract and retain customers in a competitive marketplace. Existing electricity generators using lower-sulfur PRB coal automatically reduce SO_2 emissions, freeing credits for sale to other facilities. New facilities that use PRB coal will minimize SO_2 emissions, thus needing to buy fewer scarce credits. Such incentives to use PRB coal should increase compliance with National Energy Policy guidelines on better use of PRB coal resources.

2.3.3 INCREASED ENERGY DEMAND

The Draft EIS showed a projected increase in coal-generated electricity from 1,796 billion kilowatt-hours in 1997 to 2,298 billion in 2020, an annual 1.1 percent increase.[21] Studies done in 2001 show a more rapid short-term increase. While the total projection for 2020 is the same, 2005's figure was increased from 1,976 to 2,085 billion kilowatt-hours, 2010's from 2,046 to 2,196 billion, and 2015's from 2,151 to 2,246 billion.[22] By comparison, total electrical generation is expected to increase by more than 1.7 percent annually–from 3,192 billion kilowatt-hours in 1997 to 4,872 billion in 2020–while annual electricity sales climb from 3,130 billion to 4,804 billion kilowatt-hours, more than 1.8 percent annually during the same period.

National energy consumption should also increase, from 69.0 to 88.5 quadrillion Btu[23] from 1997 to 2020. Residential demand for electricity will likely increase 1.9 percent each year.[24] The National Energy Policy estimates an increased electricity demand of 45 percent by 2020 (over 2.2 percent annually) compared to a 30 percent increase between 1973 and 2000.[25]

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[21] Annual Energy Outlook 1999 - With Projections to 2020, U.S. Department of Energy, Energy Information Administration, December, 1998.

[22] Annual Energy Outlook 2001 - With Projections to 2020, U.S. Department of Energy, Energy Information Administration, December, 2000.

[23] British thermal units, a measure of heat. One Btu equals the heat energy generated by metabolism of approximately 252 calories by the human body, or the amount of heat energy required to raise the temperature of one pound of water by one degree Fahrenheit.

[24] Annual Energy Outlook 2001 - With Projections to 2020, U.S. Department of Energy, Energy Information Administration, December, 2000.

[25] National Energy Policy - Report of the National Energy Policy Development Group, National Energy Policy Development Group, May, 2001.

To meet the country's energy needs, electricity generators will likely use a variety of fuels, including coal, natural gas, nuclear, and renewable sources. In 1999, coal accounted for 51 percent of total electricity generated in the United States. By 2020, this is expected to decline to about 44 percent,[26] not because of reductions in coal use, but due to greater reliance on other energy sources. As older generating facilities are retired, it is expected that a higher percentage of their replacements will be fueled by natural gas, due to environmental regulations and faster permitting, construction, and start-up.[27] However, not only will some existing coal-burning facilities be replaced with new ones, but new coal-fired facilities will also be required to meet the increase in energy demand. Coal consumption by electricity generators should lead other users, with a projected annual growth of 1.2 percent and increases from 897 to 923 million tons (mt) annually between 1996 and 1999, then to 1,186 mt by 2020.[28]

Projected increases in natural gas prices may be partially offset by declining coal prices, resulting in stabilization of electricity prices.[29] To generate competitively priced electricity systemwide, utilities may increase generation from coal to balance out the impacts of rising natural gas prices, increasing demand for low-cost coal, of which PRB is one of the cheapest.

2.3.4 INCREASED DEMAND FOR PRB COAL

For the reasons discussed above, demand for coal from Wyoming, already the nation's leading coal-producing state, is expected to increase. From 1991 to 1998,[30] Wyoming produced

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[26] Annual Energy Outlook 2001 - With Projections to 2020, U.S. Department of Energy, Energy Information Administration, December, 2000.

[27] Ibid.

[28] Data on energy demand and use, as well as coal demand and production are from reports presenting data that may be one or more years old due to the time required to prepare reports. While showing a trend toward increased energy, electricity, and coal demand, and dramatic increases in natural gas prices, these data may be conservative given recent developments in the energy industry, including electricity shortfalls in the western U.S., particularly California, and projections of more widespread shortages.

[29] Annual Energy Outlook 2001 - With Projections to 2020, U.S. Department of Energy, Energy Information Administration, December, 2000.

[30] Data for 1999 and 2000 are not yet available.

more coal each year than all interior[31] coal states combined, and more than all other western coal states combined. In 1998, Wyoming produced 314.4 million tons (mt) of coal, slightly over 28 percent of total U.S. coal production,[32] up from about 26 percent in 1997. Increased demand for Wyoming low-sulfur, low-ash coal comes from Midwestern markets, and eastern markets as far away as Alabama and Georgia.[33] Production of Wyoming coal is forecast to increase from 336.5 mt in 1999 to 358 mt in 2005,[34] about a 1.0 percent annual increase. If Wyoming merely maintains until 2020 the annual 1.0 percent production increase currently projected for 1999 to 2005 (a 21 percent total increase), its coal production should be more than 400 mt by 2020.

Wyoming's coal production in 2020 may also be estimated by comparison to projections for western coal production, which increased from 439 to 488 mt between 1996 and 1998, then to 502 mt in 1999, and is expected to be 787 mt in 2020,[35] an annual growth of 2.2 percent.[36] In 1998 approximately 64 percent of western coal was produced in Wyoming.[37] If Wyoming maintains this percentage of western-state output, it should be producing approximately 503 mt in 2020, an annual increase of approximately 4.1 percent, or a 49 percent increase overall. Therefore, it appears that Wyoming coal production by 2020 could range between 400 mt (steady 1.0 percent annual increase from 1999 to 2020) and 500 mt (64 percent of projected western-state output in 2020). These projections from independent sources support statements in the Draft EIS that demand for coal, particularly Wyoming coal, will continue to increase.

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[31] The interior coal states are: Arkansas, Illinois, Indiana, Iowa, Kansas, western Kentucky, Louisiana, Missouri, Oklahoma, and Texas. The other western coal states are: Alaska, Arizona, Colorado, Montana, New Mexico, North Dakota, Utah, Washington. See B.D. Hong, Annual Review 1995: Coal Overview, Mining Engineering, Vol. 48, No. 5, May, 1996, pp. 41-46. See also, Coal Industry Annual 1998, Department of Energy, Energy Information Administration, 2000.

[32] Coal Industry Annual 1998, Department of Energy, Energy Information Administration, 2000.

[33] B.D. Hong, Annual Review 1995: Coal Overview, Mining Engineering, Vol. 48, No. 5, May, 1996, at 32.

[34] Wyoming Coal 2001, Wyoming Coal Information Committee, 2001. Available on-line at www.wma-minelife.com/coal/wcic2001.

[35] Annual Energy Outlook 2001 - With Projections to 2020, U.S. Department of Energy, Energy Information Administration, December, 2000.

[36] The projected increase presented in the Draft EIS was 728 mt in 2020. The change reflects data from a more recent issue of EIA's Annual Energy Outlook, cited at footnote 28, available since release of the Draft EIS.

[37] Coal Industry Annual 1998, Department of Energy, Energy Information Administration, 2000.

In addition, SEA believes that demand for PRB coal will increase because it offers solutions to:

- Deregulation of the electric utility industry, which increases competition and encourages reductions in costs of generating electricity such as buying and transporting coal,
- Environmental requirements to reduce SO_2 emissions by power-generating stations, and
- Increased demand for electricity, involving continued use of existing facilities and construction of new coal-burning electricity-generating plants.

2.3.5 INCREASED RAIL CAPACITY

Coal is currently the single most important commodity transported by the rail industry. The Draft EIS indicated that coal accounts for 35 to 40 percent of total rail commodity traffic in the United States. However, coal actually made up 43.7 percent of the tonnage transported by rail in 1999, accounted for 25.7 percent of rail cars transported, and generated 21.8 percent of railroad revenues.[38] Thus, while producing the most ton-miles for railroads, coal generates some of the smallest revenues per ton-mile of commodities transported.[39]

As reported in the Draft EIS, in 1999 the mines DM&E plans to serve had permitted production capacity of 343 mt, with applications to increase annual production by 90 mt. In addition, the Bureau of Land Management (BLM) sold a coal lease in 2000 with a total coal reserve of 356.5 mt, and has pending lease applications for new mines that total coal reserves of 2,267 mt. These reserves, combined with existing reserves yet to be mined at active mines in the PRB and other unidentified or undeveloped reserves are a major component of the estimated 250-year supply of coal in the United States.[40]

In recent years, UP and BNSF, the railroads currently accessing the PRB, have spent billions of dollars on infrastructure, cars, and locomotives. The Joint Line into the PRB, used by UP and BNSF, has been double tracked, with portions triple tracked, to handle the increasing traffic from the PRB. UP and BNSF have also made improvements to their own systems to

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[38] Bush Removes Coal from Endangered List, Railway Age, April, 2001.

[39] The low revenue associated with coal, despite the efficiency of unit coal trains, can be partially attributed to the expenses associated with generally greater distances traveled, competition, fuel consumption, rail cars being owned by utilities, and the back-haul of empty cars generating no revenue for the return train trip.

[40] National Energy Policy - Report of the National Energy Policy Development Group, National Energy Policy Development Group, May, 2001.

handle additional coal traffic. Most recently UP constructed a second main line between South Morrell, Nebraska and Shawnee, Wyoming, 37 miles of track at a cost of approximately $60 million. Despite these improvements and efforts, rail service between the PRB and utilities is still often characterized as bad.[41] In addition, non-railroad sources have reported that rail infrastructure on the Joint Line has reached its capacity of about 64 trains per day and approximately 300 million tons per year[42] that and additional investments in rail infrastructure are necessary.[43]

As reliance on PRB coal for electricity generation increases, potentially to as much as 42 percent of all coal-generated electricity by 2010,[44] the need for more rail capacity and alternative routes for PRB coal will also increase. The 2001 National Energy Policy recognizes the importance of rail transportation to PRB coal resources. It notes that there is currently little excess rail capacity and that capacity problems have created a bottleneck for movement of coal out of the PRB. EIA[45] further indicates that railroad expansions in the PRB are necessary to enable mines to meet the expected increased demand for PRB coal. Those supporting DM&E's proposal believe that the proposed project would help address these issues.

The PRB Expansion Project would also provide a different route for coal leaving the PRB, extending eastward instead of trending north-south. While the existing Joint Line provides two and three main lines, they all follow essentially the same alignment and run parallel to each other into and out of the PRB. While this arrangement minimizes impacts to adjacent land uses, it offers few alternatives for rail movement if one or more of these lines is out of service. During past winters, when blizzard conditions closed portions of the Joint Line, trains in the PRB suffered delays. Likewise, a series of derailments along the Joint Line in September, 2000 shut down rail

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[41] Russell. A. Carter, Future Uncertainty Demands Changes in Coal Transport, Marketing, Coal Age, December, 1999.

[42] Timothy Gardner, U.S. Coal Shortage Could Spur Summer Brownouts, 2001. Available online at www.yahoo.com/rf/010503/n27675175.html.

[43] While operation of the Joint Line provides high efficiency, there is little room for error. Congestion in the PRB has begun in recent years. See Coal Pile Up - The existing transport infrastructure is ill-equipped to handle the rash of proposed coal-fired generation projects, Coal Daily, March 30, 2001. See also Gerald Vaninetti, Coal Train Blues, Electric Perspectives, July/August 1997.

[44] Russell. A. Carter, Future Uncertainty Demands Changes in Coal Transport, Marketing, Coal Age, December, 1999.

[45] Annual Energy Outlook 2001 - With Projections to 2020, U.S. Department of Energy, Energy Information Administration, December, 2000.

operations on all three main lines for approximately 18 hours.[46] In these cases, the lack of routing alternatives resulted in delays to rail movements in and out of the PRB.

Rail capacity shortages and service failures have ripple effects on rail transportation throughout the country. While railroads have their own systems and generally operate over their own lines as far as possible, they are often required to operate over the systems of other carriers. Therefore, problems on one carrier's rail line may delay not only its own trains and shipments but also the other carriers with which it interchanges. Sidings and yards become occupied with delayed trains and rail cars waiting to be moved, switched, or delivered. Shipments to be interchanged with other carriers cannot reach interchange points, and locomotives needed to move cars at other locations remain delayed or are assigned to other more critical tasks. This was illustrated as recently as the spring of 2001 during flooding of the Minnesota and Mississippi Rivers in Minnesota. Portions of north-south rail lines of UP and Canadian Pacific Railway (CP) were impassible due to flooding. As a result, some of CP's trains were rerouted over DM&E's system, although weight restrictions limited the traffic that could be rerouted.

As noted in the Draft EIS, DM&E believes that the additional rail capacity of a third PRB rail carrier and its upgraded system would alleviate the impacts of rail service failures or delays caused by flooding and snowstorms. Should the proposed project be approved, it would provide additional capacity for the PRB as well as the upper Midwest. DM&E's rail line would provide an alternative route for UP and BNSF trains leaving the PRB, should there be problems on the Joint Line. DM&E's system would also be available to other railroads operating in the region as an alternative to reroute traffic in times of emergency. Conversely, if the project is approved, UP and BNSF lines could provide alternative rail routing, if DM&E were to experience temporary service problems.

2.3.6 INCREASED RAIL COMPETITION

Presently only two railroads, UP and BNSF, serve the PRB. Both UP and BNSF can reach the PRB from the south along the Joint Line, and BNSF also has access from the north. This arrangement offers a certain level of competition. However, depending on the destination of coal being shipped, a customer may have only single-carrier access because, as discussed in the Draft EIS, only one carrier serves a particular geographic market, or only one carrier offers a route direct enough to be economically competitive. Therefore, although competitive access to the PRB is provided by the Joint Line, competitive access for individual utility customers generally does not currently exist.

[46] Derailment Causes Domino Effect, Coal Daily, September 15, 2000.

DM&E has stated that the proposed project would increase rail competition by giving another rail carrier access to the PRB mines. Moreover, congestion in the PRB has recently led to rate stabilization.[47] Although DM&E does not have direct connections with significant coal-using facilities, its eastern connections with five other rail carriers, including UP and BNSF, could provide utilities access to a rail carrier with a shorter transportation route than their current carriers if the PRB Expansion Project is approved and implemented. In that event, utilities trying to reduce fuel and transportation costs may elect to have DM&E transport their coal from the PRB to an interchange point with their current carrier for final transport to the generating facility.

Such alternative routes could increase utilities' coal transport options in areas served by more than one of these railroads, resulting in competition between DM&E and UP, DM&E and BNSF, or among all three, depending on electric utility location. In fact, in its December 10, 1998 decision, the Board stated that DM&E could likely obtain from 30 to 60 percent of the coal-transport business in the various markets its Application identified. Additionally, the Board indicated that DM&E would likely become the dominant carrier of coal to the Upper Midwest, the region DM&E has identified as its primary market, due to mileage advantages offered by its system in this region.

If the PRB Expansion Project is constructed, UP and BNSF would continue to transport coal to their current exclusive markets (Montana, northern Arizona, and large portions of Washington for BNSF; Nevada, southern Arizona, and large portions of Idaho and Texas for UP) and compete in markets where each provides service (California, Oregon, Kansas, Missouri, Oklahoma and eastern Texas). Increased rail competition from DM&E on its shorter route could result in reduced transportation costs, thereby reducing total fuel costs for the generation of electricity as discussed previously. Reduced overall energy generation costs could result in cheaper or more stable energy costs for electricity consumers, including commercial, industrial, and residential users.

The available information indicates that, as Class I railroad systems are upgraded and improved, the existing systems of shortline and regional railroads are becoming inadequate for the interchange of rail traffic between these classes of railroads. One of the greatest challenges of shortline and regional railroads is the increase in train car loads by Class I railroads to 286,000 pounds.[48] Class I carriers are increasing loads to provide more efficient and cost effective service to shippers. As a result, the shortline and regional railroads (of which DM&E is currently considered a regional) that interchange traffic with Class I railroads are required to upgrade their

[47] Gerald Vaninetti, Coal Train Blues, Electric Perspectives, July/August 1997.

[48] How Small Roads Cope, Railway Age, August, 1999.

systems to accommodate the heavier cars, or risk a reduction or loss of service from Class I railroads. Shippers served directly by Class I railroads utilize the heavier, more efficient loads, and are better able to compete in their markets than those served directly by shortlines or regionals, which often have restrictions preventing their use of the heavier cars.

The majority of DM&E's system is currently unable to accommodate 286,000 pound cars, as discussed in the Draft EIS. This limitation, along with extensive sections of speed restrictions and excepted[49] track, make it difficult today for DM&E to compete with the Class I railroads in the region, and for its shippers to compete in their markets. Approval and implementation of the proposed PRB Expansion Project would allow DM&E to increase its train car weights and speeds, allowing it to compete with the Class I railroads in the region (primarily BNSF and UP) for non-coal rail traffic as well as PRB coal transport. DM&E's shippers would also have the opportunity to increase car loads and potentially compete more effectively in their markets.

2.4 CONCLUSION

In conclusion, the DM&E rail infrastructure is in need of system-wide rehabilitation to provide safe rail transportation, but such improvements require a substantial financial investment. National policies such as deregulation of the electric-utility industry (encouraging utilities to explore ways to reduce fuel costs) and the CAAA (requiring reductions in SO_2 emissions), coupled with projected increase in energy demand, are creating a growing demand for PRB coal. This demand requires increases in rail capacity and rail competition in the PRB to ensure increased and reliable transport of the region's coal to utility users.

The proposed PRB Expansion Project would provide DM&E the opportunity to expand its existing system into the PRB, thus capitalizing on the increasing demand for PRB coal. The PRB Expansion Project would generate the revenue necessary for rehabilitation of DM&E's existing system while also improving rail service for DM&E's existing shippers. Additionally, the project would provide increased regional rail capacity and competition, thereby enabling the PRB mines and railroads to meet the projected increased demand for PRB coal.

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[49] Track lines designated as "excepted" are exempt from compliance with minimum requirements for railbed, track geometry, and track structure. The excepted track provision, which has been part of the track safety regulations for more than 15 years, permits railroads to conduct limited, slow-speed operations over substandard trackage on low density lines where it is unlikely that a derailment would endanger anyone along the right-of-way. Trains operating on excepted track cannot exceed 10 miles per hour, carry passengers, or contain more than five cars required to be placarded due to containing hazardous materials.